

A Work Project, presented as part of the requirements for the Award of a Masters
Degree in Economics from the Faculdade de Economia da Universidade Nova de
Lisboa

When do trade reforms imply larger poverty reductions?

Rodrigo dos Santos Batista
Master in Economics – Student Number 241

A Project carried out on the Internationalization & Development area, with the
supervision of:

Professor André Castro Silva

Date:

June 7th 2010

When do trade reforms imply larger poverty reductions?

Abstract¹

I study the group of countries who conducted the largest tariff reductions of the late 1980's to analyse the relationship between trade reforms and different poverty reductions. I find that countries with larger reductions in poverty are associated with higher labour to land ratio, lower capital to labour ratio, negative trade balance and better legal systems. I find that W.T.O. participation is not relevant to poverty reductions. I also find that changes in exports good's prices can affect the countries poverty. Econometric analysis although supporting the coefficients signs fails to provide significant results.

Keywords: International Trade; Poverty; Openness; Trade Reform

¹ I would like to thank my advisor, Professor André Castro Silva, for all the support and guidance provided throughout the entire semester.

I

Introduction

Why can similar trade reforms lead to different evolutions of poverty? It is known that international trade is one of the best policies that the poor countries' governments can apply to promote their economic development and reduce their poverty rate however the results observed after the implementations of the reforms greatly vary among countries.

The purpose of this paper is to study the group of countries who conducted the largest tariff reductions in the period of 1985 to 1995 and explain, through an analysis of their characteristics, why did their poverty rate evolved in different ways. The period used to analyse the poverty rates evolution is comprised between 1981 and 2005.

The analysed countries are Bangladesh, Benin, Brazil, Burkina Faso, Cameroon, Central African Republic, Dominican Republic, Ecuador, Egypt, Ethiopia, Kenya, Nicaragua, Pakistan, Thailand, Uganda, Venezuela and Zambia.

From the study I was able to conclude that countries that possess higher labour to land ratio, lower capital to labour ratio, negative trade balance and better legal systems achieved larger decreases in poverty than the remaining countries. I also conclude that W.T.O. participation is not relevant to poverty decreases and that changes in prices of exports goods can cause changes in the poverty rate of the countries in the case of poorly diversified economies.

This group of seventeen countries is interesting because it presents us with the desired situation of similar trade reforms (large cuts in trade tariffs) yielding very different kinds of poverty evolutions: large reductions (Pakistan), small reductions (Benin) or even small increases (Bangladesh). To explain these differences some

country specific characteristics, that according to trade literature can affect international trade, were studied and through them the differences were explained. Some non-economic exogenous factors also needed to be analysed since poverty can also be affected by other factors which can possess enough power to override any international trade effect causing surprising results.

The first scenario where a non-economic characteristic arose was the Bangladesh case where the weather played an important role. Its constant floods and cyclones destroy a large share of the agriculture, increasing poverty in the rural area where the majority of the Bangladesh's poor reside and therefore causing the observed poverty increase.

The second particular case was the Venezuelan case where the country experienced poverty increase between 1981 and 2005. However after a careful look at the country's history it was possible to observe that Venezuela experienced a large financial crisis in the mid 90's which was the reason for the poverty increase instead of the increase in international trade.

Two other interesting cases to see were the cases of Benin and Egypt where the large decreases in trade tariffs had no effect on the trade volume and therefore it is impossible to establish any causal relationship between their poverty rate evolution and their trade reform.

The final case was Zambia which experienced a large poverty increase in the period. The country economy relied deeply in its copper mining industry as the largest source of income and as the largest exporting industry in the country. However this poor risk dispersion caused the poverty increase when copper international price decreased dragging a large share of the population into deep poverty. This case provides the

evidence that for countries where the economy's exports relies excessively in a single good, changes in the prices of that good can affect the poverty level of a country.

After excluding those five countries it was possible to see that the endowments possessed by each country can be one of the explanations for the observed evolutions. Countries with higher capital to labour ratios and lower labour to land ratios are associated with lower poverty reductions. These conclusions are coherent with the Heckscher–Ohlin theorem and with the factor-price-equalization theorem.

The position that each country assumes in the World market (positive or negative trade balance) can also partially explain the poverty evolution as we can see that countries with negative trade balances achieved larger poverty reductions.

The relationship between membership in the World Trade Organization (or G.A.T.T. before 1995) and poverty reductions leads to the conclusion that the W.T.O. is not relevant in terms of poverty. This result supports the finding of Rose (2004) who states that countries within the W.T.O. are not that different from countries outside it.

The final analysed characteristic was the quality of the legal structure and the security of property rights. It is possible to see that countries with better legal systems have achieved larger poverty reductions.

Econometric analysis of the above characteristics confirmed the sign of the coefficients but failed to prove the statistic significance in all coefficients except in the case of the capital to labour ratio and the case of the quality of the legal system.

The paper is organized as follows: Section II presents definitions of expressions and computations used and presents data regarding international trade, trade tariffs and poverty. The relevant literature for this paper is reviewed also in this section. Section III presents the analysis of the countries' characteristics and Section IV concludes.

II

Literature and Data Review

The first definition is the one of poverty. The poverty threshold used is the new international poverty line used by the World Bank which sets \$1.25 PPP per day (instead of the previous one of \$1.00 PPP) as the minimum income an individual requires to obtain an adequate standard of living. The computed poverty rate is the share of the country's total population below the mentioned threshold. All the data sources can be seen in appendix A.

I considered that a country is poor if it belongs to the category of low income countries or to the category of lower middle income countries of the World Bank. The World Bank considers that a country belongs to the low income category if it has a gross national income (G.N.I.) per capita smaller than \$975 and it considers that a country belongs to lower middle income category if its G.N.I. per capita is between \$976 and \$3.855. The full list of countries is available on appendix B.

Another definition concerns the measure used to account for international trade. International trade always appears as a share of the country's gross domestic product (G.D.P.) and has been computed through the following formula:

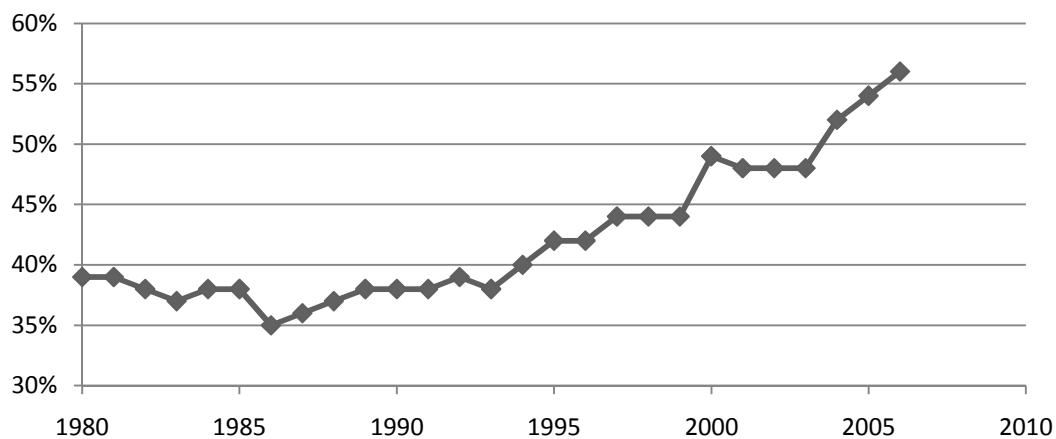
$$\text{International Trade} = \frac{\text{Imports} + \text{Exports}}{\text{GDP}} \quad (1)$$

International trade in the World has been consistently increasing since the mid 80's, (where it had the value of 35% of the World's G.D.P.) until the end of the series in 2006 (where it possessed the value of 56% of the World's G.D.P.). This evolution is represented in figure 1.

Along with the increase in international trade came critics against it stating that it did not promote poor's country development and increased poverty in those countries.

Economists, who had been supporters of international trade since Ricardo (1817) and his theory of comparative advantages, strongly opposed to these critics and started to conduct studies in order to prove them wrong. Dollar and Kraay (2001), Bhagwati and Srinivasan (2002), Winters, McCulloch and McKay (2004) state that international trade does not increase poverty and most likely decreases it. Dollar (2005) goes even further when states that “The only countries in which we have seen large-scale poverty reduction in the 1990s are ones that have become more open to foreign trade and investment”.

Figure 1 - International Trade in the World as a share of World's GDP



Source: World Bank

Through an analysis of the evolution of international trade and the evolution of poverty through time in the poorest countries, depicted in figure 2, it is easy to believe in the before mentioned authors since as one can see international trade and poverty had evolved clearly in different directions. In 1984 international trade was equal to near 30% of the poor countries' G.D.P. and the poverty rate was 43.65% while in 2005 international trade was equal to 70% of the poor countries' G.D.P. and the poverty rate

was 35.08% therefore supporting the authors' opinion that international trade does not increase poverty.

Figure 2 - Evolution of international trade and poverty rate in the poorest countries



Source: World Bank

From the above data one might be tempted to believe that international trade will always be a good tool to reduce poverty but national data tells a slightly different story, with countries experiencing all types of evolution after a trade reform. As an example one can compare the Nicaragua's case and the Dominican Republic's case, where both countries promoted similar trade reforms at the same time. In Dominican Republic poverty reduced by almost 12 percentage points in the 24 years between 1981 and 2005, while Nicaragua experienced a poverty decrease of only 5 percentage points during the same period after a similar trade reform. These differences lead to the question that I pretend to answer: What are the characteristics that each country possesses that can magnify or reduce the effects of international trade on poverty?

To answer the question the first task ahead was to select a group of countries to analyse. The chosen countries were the countries referred in Dollar and Kraay (2001) as the “Post-1980 Globalizers” according to trade tariff reductions.

The choice for the countries who conducted the largest tariff reductions instead of the countries that experienced the largest increases in trade volumes is due to exogeneity concerns. The tariff reduction is seen as an exogenous shock and allows me to conclude that all the differences in the following periods are only due to trade reform while international trade increases might have endogenous causes. As an example, consider the case of a country that experiences a considerable international trade increase. Without knowing the cause for that increase it is impossible to establish any causal relationship between poverty and international trade since it is possible that it could have been a G.D.P. increase causing the changes in both variables.

The final group of chosen countries is composed by²: Bangladesh, Benin, Brazil, Burkina Faso, Cameroon, Central African Republic, Dominican Republic, Ecuador, Egypt, Ethiopia, Kenya, Nicaragua, Pakistan, Thailand, Uganda, Venezuela and Zambia. This group is a valid group because the effects of the trade reform on poverty diverge widely between them, providing the desired different evolutions that are intended to be explained. On table 3 are presented, for each country, both the initial and final values of the weighted trade tariffs and the poverty rate before the trade reform and ten years after the trade reform ended.

From a quick analysis of the table it is possible to immediately see three very interesting cases: Bangladesh, Venezuela and Zambia. These three countries experienced a poverty rate increase after the trade reform making them three of the most

² The countries from the original list that were not included in the paper have been excluded due to data unavailability.

interesting cases to analyse. Thailand, Ethiopia and Pakistan assume themselves as the most successful countries when reducing the share of population below the poverty threshold. In the next section the differences between the countries will be analysed in order to explain the different successes of the trade reforms.

Table 3 - Weighted Trade Tariffs (1985 -1995) and Poverty Rate (1985 - 2005)

Country	Weighted Trade Tariffs			Poverty Rate		
	1985	1995	Change (p.p.)	1985	2005	Change (p.p.)
Bangladesh	92,7%	26,0%	-66,7	44,18	50,47	6,29
Brazil	45,8%	11,5%	-34,3	17,1	7,76	-9,34
Burkina Faso	60,8%	28,5%	-32,3	73,02	55,04	-17,98
Benin	42,8%	12,7%	-30,1	53,47	49,99	-3,48
Pakistan	69,2%	41,7%	-27,5	72,9	22,59	-50,31
Kenya	39,4%	13,5%	-25,9	38,42	19,72	-18,7
Ecuador	34,3%	11,7%	-22,6	11,12	9,78	-1,34
Venezuela	31,1%	12,7%	-18,4	6,23	9,98	3,75
Thailand	41,0%	23,1%	-17,9	21,92	0,4	-21,52
Dominican Republic	31,9%	15,0%	-16,9	16,64	4,98	-11,66
Cameroon	32,0%	18,1%	-13,9	42,99	27,51	-15,48
Central African Republic	32,0%	18,6%	-13,4	79,52	64,43	-15,09
Ethiopia	29,6%	16,3%	-13,3	66,22	39,04	-27,18
Zambia	29,9%	17,0%	-12,9	53,56	64,29	10,73
Uganda	25,0%	13,0%	-12	66,24	51,53	-14,71
Egypt	39,7%	28,1%	-11,6	12	1,99	-10,01
Nicaragua	22,1%	10,7%	-11,4	9,18	5,35	-3,83

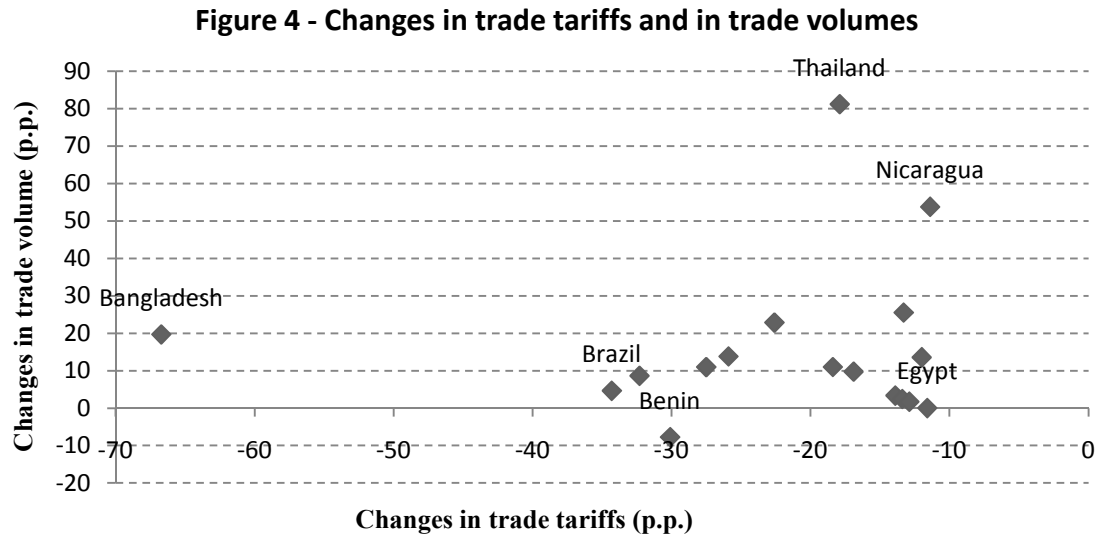
Sources: Dollar and Kraay (2001) and World Bank

III

Trade openness and the magnitude of poverty reductions

The first step required to analyse the effects of international trade in these countries poverty is to observe if the trade reforms did indeed lead to an increase in trade volumes. Figure 4 represents the change in the weighted trade tariffs (1985 –

1995) and the changes in trade volumes (1985 – 2005), both changes expressed in percentage points (p.p.).



Source: World Trade Organization and Dollar and Kraay (2001)

As it is observable from the figure, both Benin's and Egypt's trade reform did not increase their trade volume which raises the first problem for this paper. Given that those two countries did not increase their trade volumes, they become unusable to the paper since they cannot explain how poverty rates are affected by the increase in international trade. The reason why their trade reforms were not effective is not analysed since the paper only concerns trade openness and poverty rates.

In all the remaining cases a trade reform indeed led to trade volumes increases so a new question need special attention: Why did Venezuela, Zambia and Bangladesh's poverty increased? This is a surprising result since as pointed before economic literature unambiguously states that international trade will not increase poverty and therefore these countries might have experienced some shock that led to the unexpected increase.

Bangladesh conducted its trade liberalization in the period from 1985 to 1995 and after it started to experience a considerable GDP growth (there was no considerable

GDP growth before 1989), which has been sustained after 1995, but that increased income has not reached the rural population due to the high income distribution inequality within the country. That fact could explain why poverty did not decrease but it would have not been enough to explain the increase. After a look through Bangladesh's history it is possible to see that natural causes might be the explanation for the unexpected trend. The rural population depends mainly on the agricultural activities and those activities, in Bangladesh, are regularly affected by meteorological issues such as cyclones or floods, which are able to quickly destroy the poorest families' income jeopardizing the families' subsistence. The data seems to support this theory as it can be observed by the poverty rate increase of 5.15 percentage points from 1996 to 1999 (49.55% in 95 to 54.7% in 99) which coincides with the 1998's floods that affected two thirds of the population and displaced millions of people. The 7 points increase in Bangladesh's Gini Index also supports this possibility.

Venezuela's case is also interesting since Venezuela conducted a successful trade reform between 1985-1995 which led to a poverty decrease (6.23% in 1981 to 2.62% in 1993) but in 1994 Venezuela dived into a financial crisis after the fall of *Banco Latino*. *Banco Latino* depositors accounted for more than 10% of Venezuela's adult population and its closure caused panic in the Venezuelans who started the bank runs, withdrawing their bolivars and converted them to dollars which were then transferred abroad. These events started a snowball which led to the fall of numerous banks and financial institutions presenting a cost in bail-outs of \$11 billion financed by increased money supply. The money supply increase caused inflationary pressures which only magnified the crisis effect. By 1996 Venezuela's poverty rate had increased to 14.71%, rate which remained almost unchanged by 1999. In 1999 Venezuela's economic policy changed its

direction completely with the election of Hugo Chávez as president who decided to implement a socialist economy and some anti-international trade measures. The new policies were not able to reduce the countries' poverty and by 2002 the rate was of 18.41%. At the end of the series in 2005 poverty had finally reduced (9.98%) but it was still higher than the original value.

The remaining country, Zambia, experienced the largest poverty increase of all the countries (from 53.56% in 1981 to 64.29% in 2005). To explain this increase I start by analysing the countries industry and economic history and a word is always present: copper. The country already possessed a large volume of international trade at the beginning of the series, mainly due to the exports of this mineral, which accounted for 95% of the country's total exports. The copper-mining industries were the largest source of income in the country and, through it, the country experienced some considerable growth during the 1960's. However this high dependence on copper was also the cause for Zambia poor performance in the following decades. In 1973, the oil crisis was the start of Zambia's balance of payments problems since the copper mining industry was highly dependent on oil as a power source. In 1975, the copper value in the world market sharply decreased leading Zambia to a serious debt problem. All these facts occurred before the start of the series but its effects are still being felt through the consequences of the IMF agreements and the absence of economic growth. The final blow was the fall of the socialistic regime in 1991 that gave place to a democratic government known for its corruption which compromised the economic recovery.

From Zambia's case it is possible to conclude that in poorly diversified economies, changes in the prices of export goods can cause large changes in poverty.

With the remaining countries, which did not experienced any event like the ones experienced by Zambia, Venezuela or Bangladesh I conducted the analysis through the observation of the countries characteristics.

Endowments

The first characteristics that I observed are the countries endowments. International trade models predict different outcomes depending on the countries endowments and those different outcomes might influence the effects on poverty. The analysed endowments are labour, land and capital. In order to estimate the value of capital for each country a process equal to the one used by Caselli (2005) is used. In this process the current capital stock is estimated using the perpetual inventory equation:

$$K_t = I_t + (1 - \delta)K_{t-1} \quad (2)$$

Where K stands for the stock of capital, I stands for the investment and δ is the depreciation rate. The value chosen for δ is 0.06 (as used by Caselli) and the value for the initial capital stock was computed through the following formula:

$$K_0 = \frac{I_0}{g + \delta} \quad (3)$$

In this formula g is the average geometric growth rate for the first ten years of the investment series.

To define the expected results from the endowments analysis the context of a Heckscher-Ohlin model is considered. According to the Heckscher-Ohlin theorem countries will export goods that intensively use the country's abundant factor, so I expect that these poor countries export mainly labour intensive goods. Also relevant for this analysis is the factor-price-equalization theorem, which states that "Under identical constant-returns-to-scale production technologies, free trade in commodities will

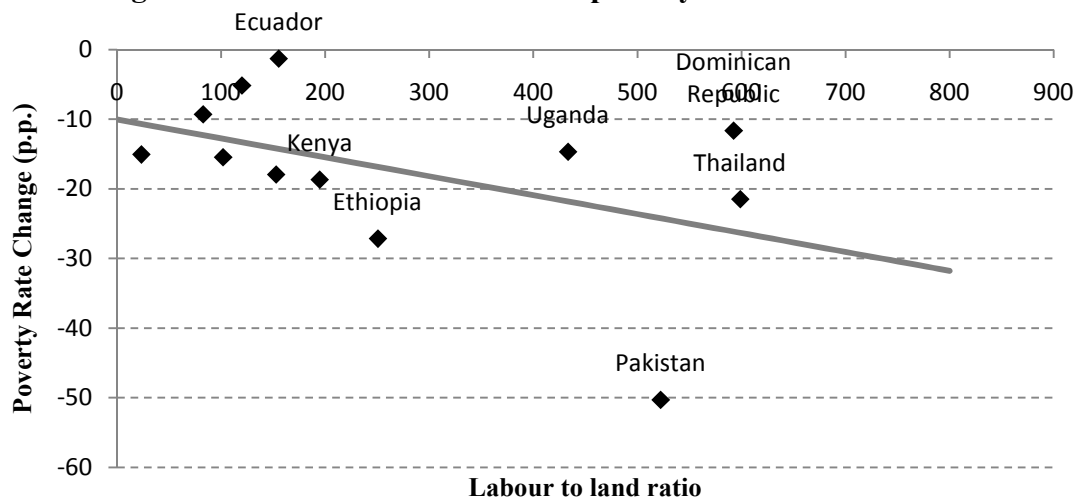
equalize relative factor prices through the equalization of relative commodity prices, so long as both countries produce both goods.” (as stated in Markusen, Melvin, Kaempfer and Maskus (1995)) and therefore I expect to see a poverty reduction because as long as the labour intensive good is exported the workers’ wage will increase. It is not expected to see the full wage equality due to the assumptions of the models that are not verified in the real world but any small increase in wages could drive people above the poverty threshold. Due to these two theorems I expect to verify a negative relationship between poverty evolution and the labour to land ratio while it is expectable to verify a positive relationship between capital to labour ratio and poverty.

It is still important to mention another literature statement concerning factors endowments. Fischer (2001) published a paper concerning “the evolution of inequality after trade liberalization” in which he states that land-abundant countries experience inequality increase while labour-abundant countries experience inequality decrease after trade liberalization. Fischer defines a country as land-abundant if the country possesses a land to labour ratio higher than the world ratio and at the same time it possesses a capital to labour ratio lower than the world ratio. The definition of labour-abundant country is given to countries with a labour to land ratio higher than the world ratio. From Fischer’s statement it is expected to see the land-abundant countries underperform the labour-abundant ones in terms of poverty reduction given the inequality increase.

In Figure 5 and in Figure 6 I present the relationships between the different relative factor endowments³ and poverty evolution. In table 7 it is possible to see whether the country qualifies as a land or labour-abundant country, whether its Gini Index increased or decreased and the poverty rate evolution.

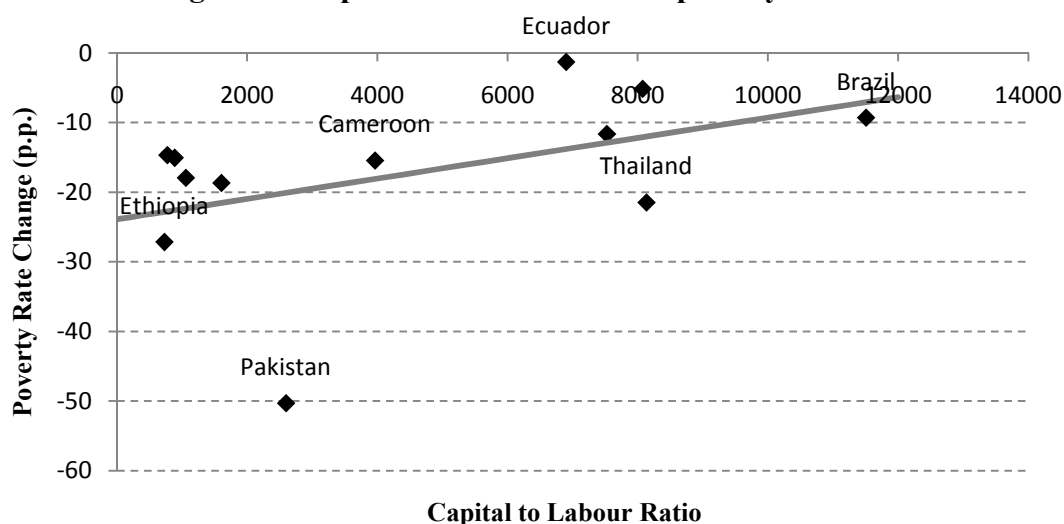
³ Expressed as the country’s average endowment in the period from 1981 to 2005

Figure 5 - Labour to land ratio and poverty rate evolution



Source: World Bank, I.L.O. and F.A.O.

Figure 6 - Capital to labour ratio and poverty rate evolution



Source: World Bank, United Nations Statistical Division and I.L.O.

Since the results from figure 5 and 6 confirm the predictions of the model I can conclude that a relatively higher labour factor endowment is one of the characteristics that can magnify the effects of international trade on the poverty rate.

Table 7 values show that Fischer's predictions do not apply to this specific set of countries. Income inequality only increased in two cases and those two countries do not possess the same relatively abundant factor therefore meaning that I cannot conclude

anything about inequality evolution from the countries factor endowments (and hence about poverty).

Table 7 - Country Classification, Gini Index Evolution and Poverty Evolution

	Land Abundant	Labour Abundant	Gini Index Evolution	Poverty Evolution
Brazil	Yes	No	-1,09	-9,34
Burkina Faso	Yes	No	-11,11	-17,98
Cameroon	Yes	No	-2,26	-15,48
Central African Republic	Yes	No	-17,76	-15,09
Dominican Republic	No	Yes	2,19	-11,66
Ecuador	Yes	No	3,16	-1,34
Ethiopia	No	Yes	-2,66	-27,18
Kenya	No	Yes	-9,78	-18,7
Nicaragua	Yes	No	-4,05	-5,2
Pakistan	No	Yes	-2,17	-50,31
Thailand	No	Yes	-2,77	-21,52
Uganda	No	Yes	-1,74	-14,71

Trade Balance

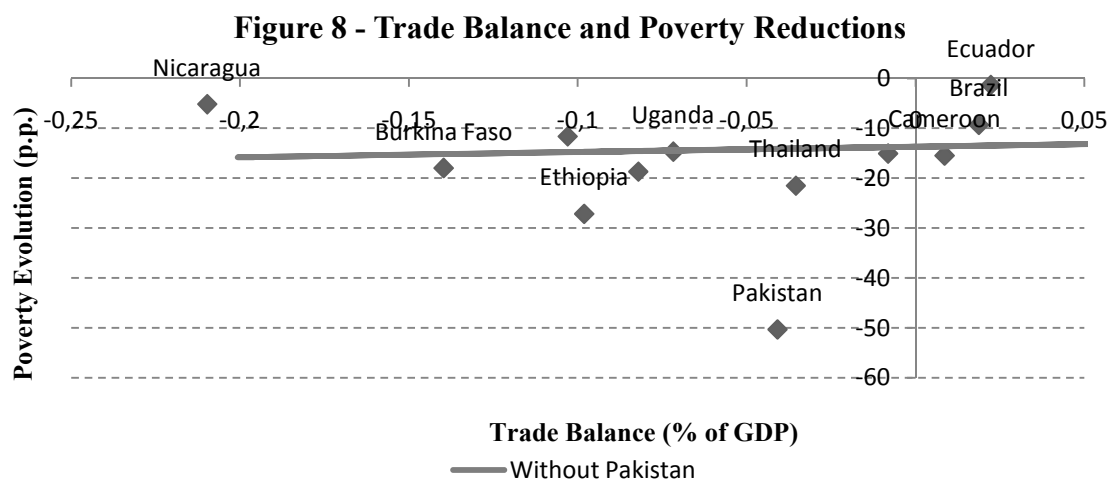
The next studied characteristic is the trade balance which is defined as:

$$Trade\ Balance = \frac{Exports - Imports}{G.D.P.} \quad (4)$$

If the trade balance has a positive sign it means that in net terms the country is an exporter while if the sign is negative it means that the country is a net importer. A country that opens itself to trade will become a net importer if its autarky prices are higher than world price and its citizens are able to get the goods cheaper than before (as stated by Friedman and Friedman (1980)) experiencing a purchasing power increase. If the opposite occurs and the autarky prices are in fact lower than the world price the citizens will experience price increases and their purchasing power will decrease.

If the country is a net exporter it is expected a rise in the prices and therefore the currency will experience devaluation in PPP terms, meaning that households, whose income did not increase with the trade reform, might not be able to consume the same goods as they did before the trade reform and can move to below the poverty line.

In Figure 8 it is possible to observe the different pairs of trade balance surplus⁴ and the different poverty rates evolutions. It is necessary to mention that in this figure, and in all the following, the exhibited regression line was computed without considering Pakistan. The reason for this decision was that the inclusion of Pakistan would be enough to change the sign of the coefficient, something that none of the other countries would be able to do by themselves. This fact occurs due to the unique growth rate Pakistan achieved in the last couple of decades and due to the small number of countries included in the study, meaning that Pakistan would be overrepresented in this sample when compared to the World and its inclusion would lead to biases in the analysis.

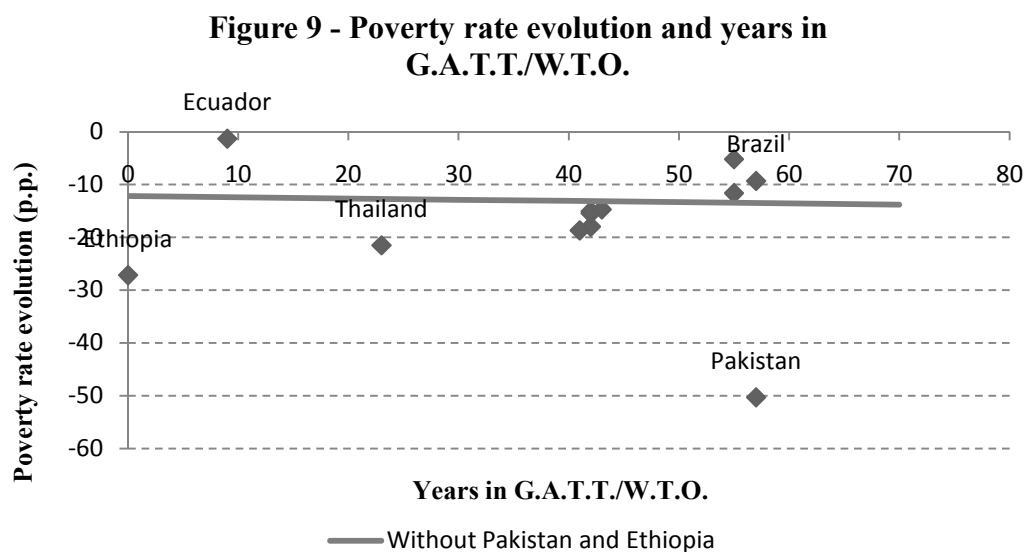


Source: World Bank and World Trade Organization

⁴ Expressed as the average value of the trade balance during the period from 1981 to 2005.

G.A.T.T./W.T.O.

International trade effects can also depend on whether or not the country is a signatory member of the General Agreement on Tariffs and Trade (G.A.T.T.) or, after 1995, the World Trade Organization (W.T.O.) since these trade organizations are the largest promoters of international trade in the world. Given that international trade decreases poverty and these institutions promote international trade I would expect that countries inside the W.T.O. would outperform countries outside it and countries who entered it between 1981 and 2005 should also achieve larger poverty reductions. In figure 9 it is possible to observe the relationship between the time for which a country belonged to the W.T.O. and the poverty evolution the country experienced. Ethiopia was not considered in the linear regression since is the only country that does not belongs to the W.T.O..



Source: World Trade Organization and World Bank

It is possible to see that the linear relationship between the two variables seems almost horizontal but in fact presents a small negative slope. That slope goes against the expected result of observing a larger reduction in poverty in the countries that entered

W.T.O. during the analysed period. The figure also allows us to conclude that member countries do not outperform the remaining countries since the only non-member country was the one experiencing the second largest poverty reductions.

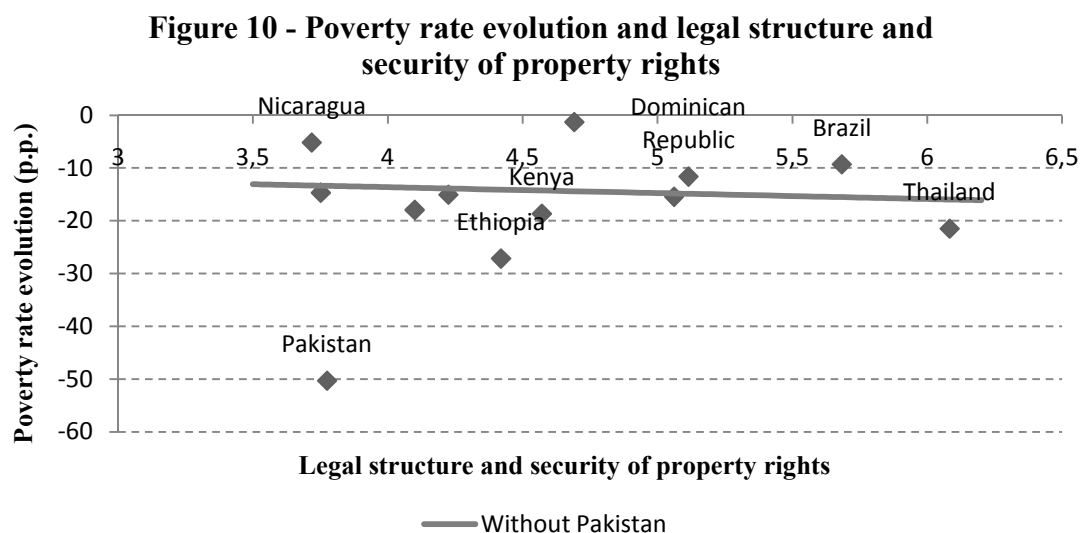
These results are supported by Rose's (2004) findings. The author stated that "we currently do not have strong empirical evidence that the GATT/WTO has systematically played a strong role in encouraging trade" and therefore if there is no international trade increase there is no reason why poverty should decrease more with adhesion to the W.T.O..

Also supporting the irrelevance of W.T.O. for poverty reductions is the p-values obtained for the coefficient associated with the membership time which are the highest of the study (further information available below).

Quality of the legal structure

Another relevant characteristic of the countries when it comes to international trade is the quality of its legal structure. The need that the enterprises possess for dispute settlement and enforceability can play a role when making the decision of establishing foreign trade partners since they need to be sure that the counterpart of the agreement will fulfil his obligations and if it does not, it will be forced to fulfil them by its own national institutions since international institutions usually lack the power to do so. Given this need it is expectable to see that countries with a better legal structure experienced increased trade volumes and consequently higher poverty decreases. To quantify the quality of the country's legal system I used the values from the *Economic Freedom of the World Report* (2009) which quantifies the legal system in broad category named "Legal structure and security of property rights" using values that range

from 0 to 10 (0 associated with poor institutions and 10 with very good ones). This value given its components can be used in our analysis.⁵ Figure 10 shows the different poverty rate reductions according to different quality levels of legal structure⁶.



Source: Economic Freedom of the World Report 2009 and World Bank

It is interesting to see that the graph although showing the expected relation it provides a smaller regression slope than the one expected. This result can be explained looking at the results obtained by Berkowitz, Moenius and Pistor (2005) who found in their study that domestic institutions are indeed important to increase a country's exports but that effect is mainly observed in the case of complex goods. The countries under observation in this paper are not complex goods exporters but basic goods exporters and therefore according to the findings of the authors the domestic legal institutions are not one of the main determinants of exports volume. In the case of basic goods enterprises tend to believe in the countries willingness to promote international trade through the entry into international trade agreements.

⁵ To compute the value they look at issues such as: judicial independence, impartial courts, protection of property rights, military interference, integrity of the legal system, legal enforcement of contracts and regulatory restrictions of sale of real property.

⁶ Expressed as the average value for the quality of the legal system in the period from 1981 to 2005.

Due to the findings of the authors it is possible to conclude that the quality of the legal structure can affect international trade but it is not possible to consider it as one of the most important characteristic when we speak about poor countries since those countries are mainly basic good exporters.

Econometric analysis

All the observed characteristics were also analysed through econometric study, both individually and together, but the results are not conclusive. In the individual analysis all the characteristics except the capital to labour ratio failed to provide a statistically significant coefficient being the smallest p-value obtained the one of the labour to land ratio (19.79%) and the highest p-value the one of the W.T.O. participation (88.03%). In the more complex regression where all the characteristics were included a significant value for the overall significance test was achieved (3.57%) but only the capital to labour ratio and the quality of the legal system were able to provide significant coefficients at a 5% confidence level. In this equation is important to mention that all the coefficient remained with the same signal that they possessed in the simple regressions.

This non-significance of the coefficients should not be considered as a major “flaw”, due to the fact that the number of countries was small and insufficient to allow reasonable econometric evidence and to the fact that there is no flawless process to measure the relationships. As pointed by Winters, McCulloch and McKay (2004) trade liberalization and poverty cannot be easily measured and many economists use a two step approach to determine it. Dollar and Kraay (2001) first prove that international trade causes growth and then prove that trade induced growth does not cause increases

in inequality meaning that international trade must reduce poverty. However not even this process is critics free as pointed by Rodrik (2000) who argues that the econometric regressions used by Dollar and Kraay (2001) have problems with endogeneity. All the regression tables can be seen on appendix C.

IV

Conclusion

It has been proven by economists that international trade is indeed able to decrease a countries poverty and therefore poor countries' governments should conduct trade reforms to promote poverty reduction. However the magnitude of the success is dependent on some of the countries characteristics which were analysed in this paper.

The first conclusion that I was able to extract is that in countries whose exports are strongly dependent on one industry and that industry is the largest source of income a fall in international prices of the good can cause a poverty increase. This was the case of Zambia in the late 70's.

The countries endowments are one of the factors that influence the magnitude of the poverty reduction. I observe in the data that the countries with the highest labour to land ratio and the ones with lower capital to labour ratio were able to achieve larger poverty reduction than the remaining countries. These results are consistent with the Heckscher-Ohlin theorem along with the factor-price-equalization-theorem which are able to predict the type of export good and the change in the price of the factor intensely used in that good.

Countries who have a trade balance deficit also performed better in terms of poverty reduction than countries who had a trade balance surplus. This result is

explained through the fact that countries who were net importers saw their citizens increasing their consumption possibilities through the import of cheaper foreign goods, and therefore achieving a living standard above the poverty threshold.

The number of years for which a country has been a member of G.A.T.T./W.T.O. is not relevant to the poverty rate evolution since, as seen by Rose (2004), W.T.O. membership does not increase trade.

Better legal systems and property rights are also associated with larger poverty reductions however its value is not as relevant as I expected. One possible explanation is given by Berkowitz, Moenius and Pistor who found that for a basic good exporting country (as long as the country is a signataire of international trade treaty/organization) the domestic legal institutions play a minor role in international trade.

After all the characteristics have been analysed is possible to state that the success of a trade reform on reducing poverty will deeply depend on the countries characteristics. The most successful country at reducing its poverty rate was Pakistan and if one looks at all the graphs presented on the paper Pakistan is near the beneficial extreme situation in all but one characteristic (legal system) meaning that its success is explained by having the all the right characteristics. On the opposite case is Ecuador which values are close to the worse situation in the majority of the analysed characteristics supporting even further the validity of the conducted analysis.

References

Berkowitz, D.; Moenius, J. and Pistor, K. 2005. "Legal Institutions and International Trade Flows" *Michigan Journal of International Law*, 26 (1): 163-198

Bhagwati, J. and Srinivasan, T. N. 2002. "Trade and Poverty in the Poor Countries" *The American Economic Review*, 92(2): 180-183.

Caselli, F. 2005. "Accounting for cross-country income differences" In *Handbook of Economic Growth*, ed. Philippe Aghion and Steven Durlauf, volume 1, chapter 9, pages 679-741. New York: Elsevier.

Dollar, D. 2005. "Globalization, Poverty, and Inequality since 1980," *World Bank Research Observer*, 20(2): 145-175.

Dollar, D. and Kraay, A. 2001. "Trade, Growth, and Poverty" *The Economic Journal*, 114(493): F22-F49.

Fischer, R. D. 2001. "The evolution of inequality after trade liberalization" *Journal of Development Economics*, 66: 555-579.

Friedman, M and Friedman, R. 1980. *Free to Choose: A personal statement*. New York: Harcourt Brace Jovanovich.

Markusen, J.; Melvin, J.; Kaempfer, W. and Maskus, K. 1995. *International trade: theory and evidence*. New York: McGraw-Hill International Editions

Ricardo, D. 1817. *On the Principles of Political Economy and Taxation*. London: John Murray

Rodrik, D. 2000. "Comments on "Trade, Growth, and Poverty," by D. Dollar and A. Kraay" [http://hussonet.free.fr/rodrik\\$.pdf](http://hussonet.free.fr/rodrik$.pdf)

Rose, A. K. 2004. "Do We Really Know That the WTO Increases Trade?" *The American Economic Review*, 94(1): 98-114

Winters, L. A.; McCulloch, N. and McKay, A. 2004. "Trade Liberalization and Poverty: The evidence so far" *Journal of Economic Literature*, 42(1): 72-115.